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The return of "patrimonial capitalism": review of Thomas Piketty's *Capital in the 21st century*[1]

Branko Milanovic[2]

I am hesitant to call Thomas Piketty's new book *Capital in the 21st century* (*Le capital au XXIe siècle* in the French original) one of the best books in economics written in the past several decades. Not that I do not believe it is, but I am careful because of the inflation of positive book reviews and because contemporaries are often poor judges of what may ultimately prove to be influential. With these two caveats, let me state that we are in the presence of one of the watershed books in economic thinking.

Thomas Piketty is mostly known as an indefatigable researcher of income concentration. His path-breaking book *Les hauts revenus en France au XXe siecle: Inegalités et redistribution* (2001) was the basis for several influential papers published in the leading American economic journals. In the book, Piketty documented, using fiscal sources, the rise (until the World War I), the fall (between 1918 and the late 1970s) and then again the rise in the share of the top income groups in France. Piketty revived the methodology originally used by the pioneers of income distribution studies Vilfredo Pareto and Simon Kuznets. It consists of the use of fiscal data rather than household surveys, and focuses by its very nature on top incomes. This focus on the top makes both economists and the general public more aware of the rich, their income levels and share in total income than do broader distributional studies using household surveys. The French study was soon followed by a similar long-term study of top incomes in the UK (Atkinson, 2002), in the United States (Piketty and Saez, 2003), rest of Europe and

[1] Thomas Piketty, "*Le capital au XXe siècle*", Paris: Editions du Seuil, 2013, 970 pages, list of graphs and tables, no index.

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developed world (Atkinson and Piketty, 2007) and most recently in a number of emerging market economies (Atkinson and Piketty, 2010; Alvaredo et al. 2013). The work which is associated mostly with the names of Piketty, Tony Atkinson, Emmanuel Saez, and Facundo Alvaredo includes now many long-run studies, covering in some cases a century or even two, from more than 20 countries. An impressive interactive database "World Top Incomes Database" (http://topincomes.g-mond.parisschoolofeconomics.eu/) has been created. Currently (October 2013) it contains the data from 27 countries.

The prominence of the work of Piketty and his associates has also been helped by the revived interest in inequality which coincided with the onset of the Great Recession and the realization that in the United States incomes around the median have been stagnant in real terms for almost 40 years while the top 1%, or even more narrowly top 0.1%, have dramatically increased their share of total income. The confluence of the rise in the political importance of inequality, best exemplified in the *Occupy* movement and the *99% vs. 1%* slogan, had its empirical basis in the work done principally by Thomas Piketty and Emmanuel Saez (2003). Their famous graphs of the income shares of US top decile, top 1% and top 0.1%, showing that at the turn of the 21st century rich's income shares approached the extremely high values from the roaring twenties, are now found all over the Internet and in many magazines and newspapers. But their origin goes back to Piketty's 2001 book on top incomes in France.

Methodological and political changes went hand in hand: suddenly household surveys, which for decades were the bread-and-butter of economists working on inequality (including myself), were shown wanting as they failed to fully capture this new phenomenon: the ineluctable rise of the top…and the stagnation of everybody else.

A reader who knows Thomas Piketty from this literature will expect to find a book that discusses issues of income concentration. He or she will not be disappointed. Here are they all, described and explained more clearly than ever. However, this is not the only important part of the book. The key contribution is Piketty's analysis of capitalism. The book provides "a general theory of capitalism." Issues of inequality are only one, no doubt important, facet of that general theory. Piketty's unstated objective is nothing less than the unification of the theory of economic growth with the theories of functional and personal income distributions, and thus a quasi complete description of the functioning of a capitalist economy.

The book is organized in 4 parts and 16 chapters. The four parts are as follows: first, some "clearing of the decks", which consists mostly in the introduction of definitions, national accounts identities and relationships to be used later; second, focus on the capital-income ratio and functional distribution of national income; third, inequality in inter-personal distributions of wages, property incomes and wealth; and fourth, policy recommendations. Capital, as the title suggests, is at the center of the book. It is a huge and extremely rich book. Suffice it to say that it covers two to three centuries of empirical data on capital and output, national income distributions, the rate of return on capital, inflation, inheritance flows and more for the most important rich economies (France, UK, United States, and somewhat less Germany, Japan, Sweden, and Canada). Its range is immense: from the exchange rate of the *livre tournois* on the eve of the French revolution to the 2013 Cyprus financial crisis; from the capitalized values of slaves in the Southern USA to the Chinese private foreign holdings today; from the percentage of the population with the right to vote in France under Bourbon Restoration to today's incarceration rates in the US. In addition, this 950-pages long book is accompanied by an enormous online technical annex (http://piketty.pse.ens.fr/fr/capital21c) which contains all the underlying data used in the book, tables, graphs, references and the summary of the essential points. So by using less than ½ of 1 percent of the total space of Piketty's book and annex, this review will attempt to provide an exposition and assessment of the book's key points and messages.

1. Fundamental economic laws of capitalism. To understand Piketty one has to go back to the classics of economics. Like Ricardo, Malthus and Marx, Piketty builds a simple "machine" which encapsulates the key features of a capitalist economy. He then lets that machine run its course and it produces the results which illuminate Piketty's discussion both of the past and the future. The "machine" or, in more modern parlance "the model", consists of one definitional relationship, two fundamental economic laws of capitalism (as they are called by Piketty), and one inequality.

Let's start with the definition (Chapter 1) that links the stock of capital (K) to the flow of income (Y). The stock of capital includes all forms of explicit or implicit return-bearing assets: housing (which Piketty, unlike many authors, emphasizes as being an integral part of capital), land, machinery, financial capital in the form of cash, bonds and shares, intellectual property, and even human persons in the time of legalized slavery. [3] The relative importance of different types of assets has, of course, changed

[3] Capital as defined by Piketty is more akin to what is often called wealth. He uses the two terms ("capital" and "patrimoine"=wealth) interchangeably (see Chapter 1, p. 84). Regarding land, he rejects the distinction between the "original and indestructible productive powers of the soil" and land improvements which alone for some should be "capital". Similarly, he rejects the distinction between wealth used in "unproductive" and "productive"

through history: landed property is much less important today than in the past. The importance also varies between rich and poor countries at a given point in time, and between different income groups. The rich generally hold much greater share of capital in the form of financial assets, the middle class holds most of its capital in housing, and the poor (and even in the rich countries they include half of the population) have hardly any net assets at all. This was all known before, from the papers such as Davies et al. (2010). But Piketty's primary concern here is with the ratio between thus defined capital and the annual total income flow. He terms that ratio β. From historical studies of France, UK and the US (Chapter 3), Piketty establishes that β has, from around the French revolution to today, followed a U-shaped curve. It was high, reaching a value of about 7 in France and the UK before World War I (and around 5 in the contemporary United Stated), to be more than halved during the next 50 years in the continental Europe and the UK, and to be reduced to less than 4 in the United States.[4] In the past 30 years, however, the pendulum has swung back and the ratio has risen, reaching or coming close to, the values from the turn of the 20th century.

This U shaped curve of the K/Y ratio was known to the readers of Piketty's previous work. In this book, he marshals more compelling evidence to show that this is a process that characterizes all advanced capitalist economies. But the full significance of increasing β comes out clearly only when it is combined with the first fundamental law of capitalism and one key inequality relationship. The first fundamental law states that the share of capital incomes in total national income (α) is equal to the rate of return, in real terms, on capital (r) multiplied by β. There is nothing new here: this is simply an identity.

But if the rate of return on capital (r) remains permanently above the rate of growth of the economy (g)—this is Piketty's key inequality relationship $r>g$—then α increases by definition, and combined with the increasing β, might drive the share of capital in national income sky-high. The process has a positive feedback loop: as α increases, not only do capital owners become richer, but, unless they consume the entire return from their capital, more will remain for them to reinvest. The

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activities (where only the latter would be called capital). Any asset that enables its owner to receive a return, including the implicit return on housing, *is* capital.

[4] The pre-World War I United States is an interesting case. It was divided into the North with low values of β (around 3) and the South with an almost European-like capital-income ratio of 6. The gap was even greater before the Civil War when the value of slaves in the South, as estimated by Piketty, was about 150% of Southern national income (Chapter 4). It is in effect known that Southern colonists were "wealth-older" and accumulated more capital than the Northerners even if we exempt slaves. Per capita incomes in the South were also higher until early 19th century (see Lindert and Williamson, 2012).

increased saving in turn makes the growth rate of capital exceed further the growth rate of national income and raises β. Thus not only does higher β lead to higher α but higher α leads to higher β.

This is, in short, how Piketty's machinery works. Take the fact that β has been rising in advanced economies, combine it with a definitional relationship (the first fundamental law), and assume that $r>g$. The process generates a changing functional distribution of income in favor of capital and, if capital incomes are more concentrated than incomes from labor (a rather uncontroversial fact), personal income distribution will also get more unequal—which indeed is what we have witnessed in the past 30 years. [5] So far so good.

The "model" however crucially depends on the inequality $r>g$. If $r=g$, then capital and national income increase at the same rate, β is stable and the share of capital in total output remains the same. A very neoclassical outcome indeed. Thus, whether Piketty's approach survives or breaks down turns on whether the evidence for $r>g$ is sufficiently strong or not. We shall return to it.

The second fundamental law deals with the long-term determination of β. From the growth theory, we know that the steady-state capital-output ratio will be equal to the saving rate divided by the rate of growth of the economy. Thus, in the long-term we would be able to define the equilibrium βs which would vary between countries. However, the second law plays a rather subsidiary role in Piketty's analysis and he resorts to it only when he considers where eventually βs may settle in some (perhaps mythical) steady-state.[6] Let us now go more carefully over the historical calculations that underlie and support Piketty's model.

2. Reinterpretation of recent economic history. We have seen that β has been rising in the advanced countries from around 1700 until the First World War. Piketty explains the rise, rather uncontroversially, as the outcome of a continued high return on capital acting upon a steadily accumulating capital in an environment that was institutionally favorable to capitalists rather than to workers. France and the UK, and no less Germany and Japan (for which the time series however is not as long), display the same movements of the capital-output ratio. The United States is an outlier because

[5] Strictly speaking, the requirement is not only that capital incomes be more concentrated but that they be positively correlated with total income: as we move up along income distribution, the importance of capital income increases (see also Atkinson, 2009).

[6] Note that if $g \rightarrow 0$ (as we shall see, Piketty thinks), then in the long-run $\beta \rightarrow \infty$ and however small r, the share of capital in total income α will be high.

it was a "wealth-young" country, where the weight of the "dead hand of the past generations" (Fisher, 1919), that is, of those who had accumulated capital in the past and transmitted it to the current generation, was relatively light.

Using very effectively literary examples from Jane Austen and Honoré de Balzac, Piketty shows that in capital-rich societies with high returns on capital as was Europe then, it often made no sense to work but to concentrate rather on finding a rich spouse or otherwise inheriting property. The trade-off between a brilliant career, based on study and work, and a much more lavish lifestyle that could be afforded if one married a heiress is presented with unmatched clarity and brutality to the young Rastignac by the world-savvy Vautrin in Balzac's *Le père Goriot*. This trade-off, called the Rastignac dilemma by Piketty (does it pay to work hard when one can inherit much more by marrying well?), is all well known to the readers of English and French literatures of the 19th century.[7] So obvious was the answer that the Rastignac dilemma is not even posed in most cases. No reader of Jane Austen is left in doubt that education is a pleasant activity mostly useful to enhance marriage prospects of young ladies and gentlemen (we are far from human capital here!), work is never to be undertaken (unless characters really get into serious trouble), and everybody's social position is measured by the annual rent he (mostly he) commands. It is back to this, by the most current views revolved type of society, that developed capitalist economies are trending to—argues Piketty. They are moving toward the income relationships where the Rastignac dilemma will again be relevant.

But why did β, after the period of the Belle Époque, [8] decline precipitously in continental Europe, UK and Japan (and less so in the US)? It is, Piketty argues, because of physical destruction of capital during the extraordinary period of the two World Wars, high taxation of inheritance and "confiscatory" income taxes (both being closely linked to the need to sustain war effort), high inflation that helped debtors vs. creditors, and finally because of the more labor-friendly political atmosphere after World War II. All of these factors were detrimental to capital accumulation, reducing β, and the

[7] The American literature was just slightly behind (because the circumstances were different). But Henry James' *Washington Square* has exactly the same plot, as does the movie "Titanic" (both of which Piketty cites). An almost endless number of such literary examples can be given containing—and this is unique to the 19th century literature—very detailed information on monetary incomes.

[8] *La Belle Époque* normally designates in France a period of the 3rd republic, from the suppression of the Commune in 1871 to the break out of World War I. It is the same period whose description appears in the famous first pages of Keynes' *Economic consequences of the peace*. One is never sure to what extent Piketty uses the term with a slightly ironic touch.

share of capital in national income. It was however capitalism's Golden Age, the years of "les trente glorieuses" (1945-75), as they are called in France, or "Wirtschafts-wunder" in Germany. The European economies, US and Japan expanded the fastest in their histories. The European economies and Japan almost fully caught up with the United States in terms of worker's per-hour productivity, [9] the capital-output ratio and net return on capital were low, taxation high, the functional distribution shifted in favor of labor, and the personal income distribution became more equal. [10] This was, seen from today's perspective, a Golden Age indeed, whose passing is often lamented (as Piketty points out) by the now aging baby boomers, born and raised at that time.

But with the Thatcher-Reagan revolutions in the late 1970s, the Golden Age receded, and capitalism reverted to the form it had in the late 19th century.[11] Capital was already being slowly rebuilt before; but from the late 1970s, with reduced taxes on profits and income (a point which Piketty extensively documents), and the quasi elimination of taxes on inheritance, the rebuilding accelerated and β began its steady climb, reaching in the early 21st century values from around a century ago. The growth rate of advanced capitalist economies declined because the convergence came to an end, and both the functional and personal distribution deteriorated; the first moving against labor, the second against everybody but the top 1%.

Why is this a different interpretation of economic history from many others and how does it relate to the $r>g$ inequality? Piketty's view of the Golden Age is that it was a very special and unrepeatable phenomenon in the history of capitalism. Due to the process of convergence, Europe's capitalist economies and Japan grew faster than they would have if they were at the technological frontier. Increasing population growth rate also drove g ever higher (note that g is the sum of population growth and the growth of per capita income). On the other hand, institutional factors, including high taxation and the threat of Communism (which Piketty does not mention) kept r low, and

[9] See the latest Penn World Table version 8.0 where US per hour productivity in 2011 is estimated (in 2005 constant PPP dollars) at $55, and French and German at $50.

[10] If we rank countries in increasing order of their GDP per capita in 1950, their average real GDP per capita growth rates over the next 60 years were: Japan 4.6%, Germany 3.3%, France 2.4%, UK 2.0%, US 1.7%. Textbook case of convergence economics.

[11] The Thatcher-Reagan revolution was driven, Piketty writes (Chapter 2, p. 164), by the factually correct idea that the US (and to a lesser extent UK) preeminence was being eroded. But this fact was wrongly interpreted as being due to the bloated welfare state rather than to the general catch-up of the war-ravaged capitalist economies of Europe. In other words, the Thatcher-Reagan revolution changed capitalism but failed to raise the rate of growth which was its ostensible motivation in the first place.

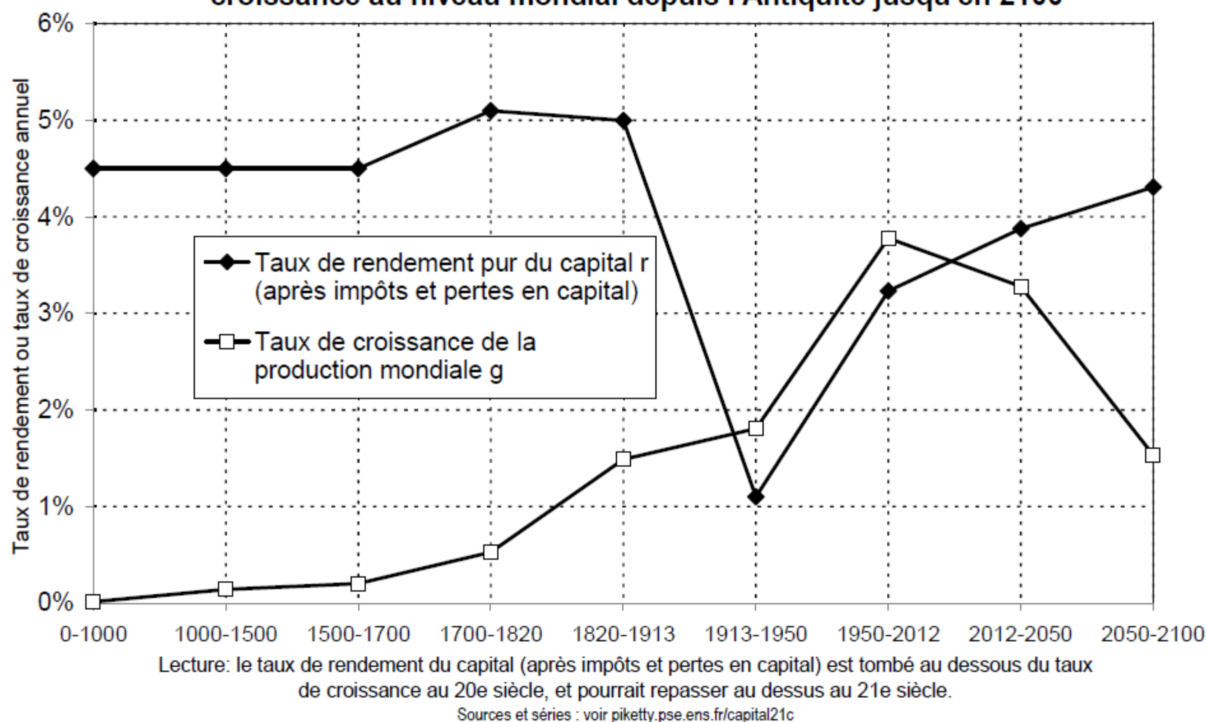
thus uniquely in the history of capitalism reversed the inequality *r>g* (Chapter 10). All positive development during the Golden Age—and this is no exaggeration—flowed from the reversal of that inequality.

Now, the reinterpretation of the 20th century economic history of capitalism is obvious if we compare Piketty's argument with those present in some influential recent books by top economists and economic historians like David Landes' *The Wealth and Poverty of Nations* (1999), Angus Deaton's *The Great Escape* (2013), Gregory Clark's *A Farewell to Alms* (2011), and Daron Acemoglu and James Robinson's *Why Nations Fail* (2013). For these authors, the entire period after the Industrial Revolution is seen as a final "enfranchisement" of man from the "brutish and short" Malthusian existence. A well-publicized graph by Gregory Clark, based on Angus Maddison's data, illustrates it best: after thousands of years of stagnation, the world 's output, starting from the Industrial Revolution, is following an exponential curve to which there is no apparent end. The elixir of economic growth once discovered (whether it be human capital, institutions, control of diseases, or all of them), knows no stopping. But in Piketty's interpretation, this extraordinary exponential curve, while being "ignited" by the Industrial Revolution as well as by the French and American political revolutions, was held "alive" in the 20th century by the convergence economics, demographic growth, and, paradoxically, cataclysmic developments during the two world wars. This is now coming to an end, or after China converges to the rich countries' income levels, will indeed come to a final stop. From a convex curve we are likely to go back to a rather flat line implying barely rising or even stagnant per capita incomes. While other economic historians see the 20th century as the dawn of even better days to come, Piketty sees it as "el periodo especial" of capitalism. Never to be repeated—unless, and that would come in his policy recommendations, we do something very radical.

Indeed, things are different now, after "el periodo especial" of capitalism ended. First, as we have seen, economic policies, in particular regarding taxation of profits, have changed. Then, demographic transition (low rate of population growth) now affects all European countries, and to a lesser extent the United States, which of course reduces *g* further. The end of convergence implies that all advanced countries will grow at the rate of technological progress which, Piketty believes, is around 1-1.5% per year. Add to it 1% population growth and *g* cannot exceed 2.5% per year. If *r* remains, as Piketty thinks, at its historical rate of 4-5% p.a., all the negative developments from the 19th century will be repeated.

Note that long-term growth is given exogenously by the technological progress and population growth. The problem is that this new rate *g* is low and will inevitably be less than the rate of return to capital. It is the distributional effects of the latter (that is, of the *r*>*g* inequality) which are deleterious for the society as a whole: they favor property-owners over labor, not working over working, make mockery of equal opportunity and meritocracy, and undermine democracy as the rich use their money to buy policies they like. Piketty does not blame low growth for the Western countries' current predicament: low growth is inevitable once countries have reached a very high level of income. It is the "dead hand" of the past generations (high K/Y ratio) and the high returns on capital that destroy the fabric of today's advanced capitalist societies. "The past devours the future" (Chapter 16, p. 942).

3. Will *r* always exceed *g*? But, the reader will ask, if the capital/output ratio increases so much, would not the marginal return to capital diminish? Would not *r* go down? This is obviously a soft point of Piketty's machinery. He summons a lot of historical evidence to show that *r* has generally been stable during the last two centuries despite massive changes in the K/Y ratio. He also argues (Chapter 10) that, even if we go further back into the past, to the Roman times, *r* has been steady at around 5-6% (see also Goldsmith 1984, p. 277 and more recently Scheidel and Friesen, 2009). A remarkable graph, reproduced below, shows a huge positive gap between *r* and *g* from Antiquity to the early 20th century, its disappearance (or rather, the inversion, *g*>*r*) for the most of the 20th century, and then recent reemergence. Moreover, Piketty sees, interestingly, today's processes of expanding financial sophistication and international competition for capital as helping keep *r* high. While many people question financial intermediation and blame it for the onset of the Great Recession, Piketty sees it as helping uncover new and more productive uses for financial capital and maintaining the rate of return high. But far from making this high *r* a good thing for the economy, he regards it, unless checked by higher taxation, as a portender of disaster.



Will the reader be convinced by the argument that the elasticity of substitution between capital and labor is likely to remain high, and that an increase in capital will not drive *r* down?[12] It is difficult to say. Piketty's arguments, particularly those drawn from economic history and the data he has put together, are strong, even persuasive (see for example his estimation of two centuries of net return on capital in France and the UK, in Chapter 6). But he is running against one of the fundamentals of economic theory: decreasing returns to an abundant factor of production. Piketty is indeed critical of a blind belief that marginal returns always set the price for labor and capital, but these arguments are not developed and come in the form of *obiter dicta*.

The validity of Piketty's "model" thus depends on the key proposition of relative stability of the rate of return on capital. But in a methodological approach that he both pioneered and clearly prefers,

[12] High elasticity of substitution is necessary to make *r* remain relatively stable in the face of an increase in the K/Y ratio. The extreme example is a society where the entire output is produced by robots. The returns will go entirely to the owners of robots and factoral income distribution would be 100% capital, 0% labor. Piketty (Chapter 6, p. 343) mentions this possibility. Generally speaking, Piketty tends to believe (Chapter 6, p. 350) that the "volume effects" (increase in K in this case) tend, in the long-run, to dominate the "price effects" (decrease in *r*).

the answer to that question cannot be given in the abstract but only by the empirical evidence that is still in the future. In other words, we shall have to wait for the judgment of history.

4. Patrimonial capitalism. How does the view of the "return of capital" or even of the "return of the rentier" square with the evidence of rising importance of education and of something that Piketty and Saez (2003) and Piketty here (e.g. Figure 8.8) have documented: the increasing importance of high labor incomes among the top 1%? Aren't we far from the rentier capitalism of the 19th century Europe?

Piketty agrees. High β does not mean exactly the same thing today as more than 100 years ago. We are indeed living in a "patrimonial capitalism" (a new term coined by Piketty, the inheritance-based capitalism), but with (i) lower concentration of property at the top, (ii) property that has "penetrated" much more deeply into the middle classes, and with (iii) labor incomes received by top managers and bankers which place them, alongside the "rentiers", into the top 1%. Among the members of the top 1% "cohabit" the "coupon-clipping rentiers" and the "working rich" (Chapter 8). [13] Essentially, the modern "patrimonial capitalism" has succeeded in spreading modest property across the entire top half of the income distribution (as opposed to top 5% in the early 1900s) and in creating high labor incomes.

But the ownership of capital, often through inherited wealth, still remains crucially important, and—in a remarkable statistic—Piketty shows that the annual flow of inheritances as a share of national income in today's France, UK and Germany is about the same as a century ago: between 8 and 12 percent of national income.[14] Moreover, the percentage of population born in the 1970-1980s that receives inheritance equal to the capitalized lifetime earnings of a worker in the bottom half of the wage distribution is about 12%, again the same as a century ago. Among the coming generations it will likely reach 15% (Chapter 11). In conclusion, Piketty agrees, yes, today's "patrimonial capitalism" is not exactly the same as a century ago: it has a broader base and the concentration of wealth at the top is less; high labor incomes are more frequent. But its key feature—ability to generate a satisfactory income without the pain of work—is still there. Rastignac's dilemma is back.

Are labor incomes of bankers and financiers classical labor incomes determined by marginal productivity? Piketty doubts it. He cites evidence to show that such earnings at the top depend mostly

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[13] This point was originally made by Wolff and Zacharias (2009).

[14] This is a useful and new statistic which, in detailed form, Piketty writes, exists only for France and the UK. It is the sum of all bequests at the time of death and of "fiscal gifts" *inter vivos* ("donations" in French) in a year divided by yearly national income. This topic is expanded in Piketty (2011).

on chance events which have nothing to do with the quality of management. He does not think that the marginal product of bankers and top managers can be determined with any certainty: their high wages are the product of a collusive agreement between themselves and the boards (Chapter 9). And in order to limit them, Piketty sees a role for high ("confiscatory") taxation. High taxes on the super rich will have minimal revenue effect. But they will dissuade bankers and managers from asking for such exorbitant salaries. As Piketty points out, when, as in the 1960s and the 1970s, US marginal tax rate on highest incomes was in the neighborhood of 90%, it did not make sense for managers to insist on another million if 90% of it would end in taxman's coffers. But with a marginal tax rate of 25%, the story is entirely different. So, the role of "confiscatory" (marginal) taxation is not to garner revenue but to limit "socially unproductive" high incomes which are a waste, in the sense that they are not needed to make greater output forthcoming. Taxation is also needed to curb political power of the rich. [15]

In a nutshell, societies where the K/Y ratio is high, and the rate of return on capital exceeds the rate of growth of the economy, will always tend to convert entrepreneurs into "rentiers." In such societies "the idea that free competition will put an end to a heritage-dominated society and will lead to an ever more meritocratic world is a dangerous illusion" (Chapter 11, p. 675).

5. Emerging market economies. Where do China and India (to mention only these two emerging market economies) fit in this scheme? Piketty's discussion is, as it should have been apparent by now, largely dominated by the experience of Western countries. Piketty does not address the question of emerging economies explicitly, but I think that he would (not unlike Marx in the Preface to *Capital*) say that the more developed capitalist economies only show to the less developed the image of their own future. Once China's convergence ends, its growth rate will diminish. Its capital-output ratio (which Piketty does not show) may be low today, because China, like the United States in the 18th and 19th century, is a "wealth-young" country where wealth is still low compared to the annual flow of income. [16] But it will soon rise. Moreover, China is already experiencing a fast demographic transition, and thus in some 50 years may not be in a position too different from that of today's France. It is just, one could

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[15] Piketty says it clearly (Chapter 9, p. 533): "lowering of top tax rates leads to an explosion of high salaries which in turn increases political influence—through funding of political parties, pressure groups and think tanks—of the social group that has most interest in maintaining such low rates."

[16] This is indeed the finding reported by Davies et al. (2010) in the first estimate (and its sequels) of global distribution of wealth. The average per adult wealth in China is estimated in 2011 at $21,000 while its GDP per capita is $5,600 (ratio of 3.8). By comparison, the similarly calculated ratios for Switzerland and Italy are 6.5 and 6.1 respectively (data on wealth, from a personal communication by Jim Davies based on his joint work with Rodrigo Lluberas and Anthony Shorrocks).

argue, that China, like in a fast-forward movie, has compressed the period of Western-like development to some 50-70 years rather than century and a half.

What with Africa and India? Piketty does not say anything, but again, we can assume that in some more distant future, the same process will befall them too. This, however, opens a potential crack in Piketty's argument—even if it is fully logically coherent—namely, that the period of high global growth (on account of convergence) may continue during the entire 21st century. And if it does, then the inequality $r>g$ may be overturned as it was during "el periodo especial" and the bleak future described in the book may be postponed by at least another one hundred years.

6. Dismissal of the Kuznets curve. From the fact that in this review only now we come to the issue of inter-personal distribution of income, the reader will have concluded that we are dealing here with an immensely rich book. In some 950 pages of the French original are packed so many topics, insights, comments and observations that affect almost all spheres of economics, than no single review can do them justice. But the distribution of income between individuals, and concentration of income at the top, are so much linked with Piketty's work that they must be mentioned as indeed they play an important role in the book.

The well-known finding of a U-shaped income concentration curve over the last one hundred years in most capitalist countries, but especially in the UK and US, are reprised here. But they are also placed in a larger framework of a similarly U-shaped movement in the capital-output ratio and the reverse (inverted U-shaped) movement in marginal tax rates. These two forces basically determine what happens to income concentration: if the capital-income ratio is high and taxes low, incomes will be concentrated. While in the work of Piketty and associates, the U-shaped historical movement of income concentration was presented an as important empirical finding, but not more than that, here it is set in an overall economic framework where we see why and how it emerged. Piketty's theory of income concentration can be called a "political theory" because the main forces that shape concentration of incomes are political: wars, high taxation, and inflation.

As in his previous work (*Les hauts revenus en France*) Piketty dismisses Kuznets' inverted U shape curve of income inequality (inequality increasing at low income levels, peaking at some middling income, and diminishing as country becomes rich) . He does so on several grounds. First, he does not see any spontaneous forces in capitalism that would drive inequality of incomes down; rather, the only spontaneous forces will push concentration of incomes up. Second, he thinks that Kuznets

misinterpreted a temporary slackening in inequality after World War II as a sign of a more benign nature of capitalism, while it was, Piketty argues, due to the unique and unrepeatable circumstances. There was no "overtaking" (*dépassement*) of capitalism. Third, he thinks that Kuznets' theory owes its success in part to the optimistic message ("fairy tale", p. 30) that it conveyed during the Cold War, namely that poorer capitalist economies were not forever condemned to high inequality. There was the light at the end of the tunnel: if you followed the Washington prescriptions long enough, not only will mean income grow but inequality will become less. Finally, Piketty rightly points out that the data available to Kuznets (which Kuznets himself in his famous 1954 AEA Presidential address acknowledged) were minimal, almost derisory.

Kuznets, incidentally, is not the only economist who is criticized for not using sufficient empirical evidence or reading too much in the very few data points available as well as producing work that was unduly optimistic, crafted in the spirit of "el periodo especial" and Cold War's idea of "benign capitalism."[17] Growth theory with constant income shares of capital and labor (Solow-Swann) implied that wage bargaining was meaningless; Gary Becker's idea of human capital obfuscated the classical distinction between "earned" and "unearned income"; and Franco Modigliani's ("unidimensional", p. 611) life-cycle theory with optimal zero assets at the end of one's life is manifestly wrong as people routinely leave large inheritances. There were, Piketty intimates, also some political undertones which made these theories particularly attractive: constant factor shares led to the shelving of the issue of distribution, human capital put on the same footing of "capitalists" workers and property-owners; life-cycle theory implied that we need not worry about inherited wealth. And when one thinks of these theories together, rather than separately, it does seem that they all had a very optimistic halo which may be perhaps at odds with what the Zeitgeist is today. It does not necessarily makes them wrong though, but Piketty is, I think, right to underline that, from Ricardo and Corn Laws, all successful economic theories tended to reflect the prevalent issues and the spirit of the times. Indeed this may be an advantage for the acceptability of Piketty's theory today, but nobody can tell whether this would remain so in the entire century and beyond.

7. Concentration of incomes vs. inequality or fiscal data vs. household surveys. Piketty has revolutionized the field of income distribution by the use of fiscal sources and by his focus on top

[17] Keynes is criticized (p. 348) for accepting Bowley constancy of factor shares as a "law" while having access to only a couple of data points from the 1920-30 Britain. Tinbergen's race between technology and education, recently made popular as the explanation for the rising income inequality in the United States by Goldin and Katz (2012), is thought "simplistic" (p. 483).

income shares. It is thus striking, although not altogether surprising, to read a book which in a significant part deals with inter-personal income distribution, but contains not a single reference to household surveys or to the Gini coefficient. In effect the latter is dismissed as an "aseptic" measure of inequality because of its lack of intuitive meaning (what does a Gini of 0.45 mean to an average person?). It conveys, Piketty argues, very little information about income distribution. Piketty thinks that it is perhaps that very "aseptic" feature that contributed to Gini's popularity with statistical offices and politicians. On the contrary, income shares are intuitive and meaningful. Piketty's preference is to split the distribution into four parts: bottom 50 percent, the next 40 percent, top decile, and as a part of it, top 1 percent. It is indeed an appealing way to look at the distribution even if the reader may at times get tired or confused by a plethora of numbers and shares, which at some point, not unlike the reviled Gini, begin to lose their intuitive appeal.

Piketty's use of fiscal data can also be questioned as the sole (or even the best) approach to the analysis of income distribution. Its advantages are already mentioned: long-term series (century or more in developed countries), ability to focus on top incomes and to capture them much better than household surveys.[18] And also to focus on what Piketty correctly calls "concentration" of incomes rather than inequality. The disadvantages however are significant too. Let me run through some of them. Historically, income tax returns have been filed by a small percentage of the population even in today's rich countries so the long-term series can be of dubious quality. The same is true of developing countries now. At best we might know the top of an income distribution (the richest tax-filers) but have no information about the bulk of the population. Whether the highest tax-filers are really the richest people is also questionable. Not only because of the obvious incentive to underreport income or because in the past some particularly rich classes were exempt from taxation. There is also an important, even if technical, detail. Taxes are paid by fiscal units, not by individuals: so the richest fiscal units may change with the tax rules (e.g., whether it is more advantageous to file jointly or separately). Also, the income that is reported to tax authorities is fiscal income, not economists' concept of income. For example, until 1987, interest on government bonds does not appear in US tax returns because it was not subject to taxation; every economist would include it in income however.

[18] Partly because household surveys are always samples and rich individuals are few in numbers (although if we had data on the entire population their inclusion may have a non-trivial impact on inequality statistics), and partly because the rich refuse to participate in surveys more often than the non-rich (see e.g. Deaton 2005).

Even if we disregard these problems, Piketty's calculations refer mostly to market income, that is income before government transfers and taxes. It is quite possible that an increased concentration of market income (such as Piketty and Saez report for the United States) is not accompanied by increased concentration of disposable income if taxes and transfers have become more redistributive. [19] It could even happen that disposable income inequality declines. It did not happen in the case of the United States, as we know from the detailed work by Burkhauser et al. (2012) who have compared non-top-coded US household surveys with Piketty's results. [20] But such a divergent movement cannot be excluded in principle.

To conclude: the concentration of market income among fiscal units may, or may not, tell us much about the inequality of disposable income among individuals which is ultimately the concept we are interested in. I listed above the caveats that have to go with any use of fiscal data. Piketty mentions some of them (Chapter 8, pp. 440; Chapter 9, pp. 520ff) but does not dwell on it much and later essentially ignores them. But, on a more positive note, the revolution that Piketty and his associates have brought to the field has certainly made everybody much more sensitive to the non-capture of top incomes by household surveys and to the need to combine (nobody yet knows how) household surveys that provide reasonably reliable income estimates for the bulk of the population with fiscal data that are undoubtedly better suited for the very top of the income distribution. [21]

8. Economic policy recommendations and method. The policy recommendation that has attracted most attention is Piketty's breathtaking call for global taxation of capital. It follows directly from his concern with $r>g$ inequality. The only way to reverse it, if g is exogenously given, is to reduce r. Despite its grandiose and perhaps unrealistic nature (Piketty calls it, possibly in a nod to John Rawls, a

[19] Direct (and somewhat mindless) comparison between household surveys that generally present the data on the distribution of post-fisc income and fiscal data which are pre-fisc are thus biased. The differences, even among the top, are much less when we compare like with the like. Using the 2010 US publicly-available micro data from the Current Population Survey (CPS), top decile's income share in market income is 37% vs. Piketty's 45%. For the top 1%, the corresponding numbers are 10% and 16%. (My calculations are from the "lissified" version of CPS; Piketty's numbers from Figures 8.7 and 8.8, p. 472.)

[20] These are internal Current Population Survey data where highest incomes are not top-coded (that is, reduced so as not to allow the identifications of rich individuals) as they normally are in the surveys made available to the public. But even the latter data do confirm a steady increase in US income inequality when measured by disposable income across persons or households (see e.g., Brandolini and Smeeding 2006, OECD 2011). Thus in the US, household surveys and fiscal data do agree on the trend. In some other countries, most notably in India, they do not: household surveys show much more sluggish changes than fiscal data (see Banerji and Piketty 2005; Deaton 2005).

[21] For an attempt, see Lakner and Milanovic (2013, forthcoming).

"useful utopia") one would be wrong to dismiss the proposal out of hand. Nobody believes that it could be implemented *hic et nunc*, and neither does Piketty. But it is based on several strong points.

First, the analysis sketched so far (if one accepts it fully) shows the dangers of an inheritance-based system which favors those who do not need to work for their sustenance. This can be modified precisely by a tax on capital. Second, taxes on capital, whether in form of taxes on land or inheritance, have a long history, probably the longest of all taxes, precisely because some forms of capital were difficult to hide. Extending this to include all forms of capital seems logically consistent. Third, technical requirements for such a tax (which in a rudimentary form exists in most advanced economies) are not overwhelming. Housing is already taxed; the market value of different financial instruments is easily ascertainable and the identities of owners known. The problems are, of course, political. The application of such a tax by individual countries, even the most important, like the United States, can easily lead to the outflow of capital. Thus, international collaboration is indispensable. That collaboration is unlikely to be supported by the countries that currently benefit the most from the opacity of financial transactions and offer tax havens to the rich. Moreover, some emerging market economies may be unwilling to subscribe to it too. But a more modest proposal built around the OECD members (or EU and the United States) is, Piketty argues, feasible. He takes the recently passed US legislation (Foreign Account Tax Compliance Act) as one of the first steps that could lead to regional taxation of capital. I will not discuss here other pros and cons of such a system. It is a big topic for fiscal specialists, and, as is apparent, it runs into a host of political economy problems. But it is important to put it on the table and not to dismiss it out of hand.

Appropriately for such a wide-ranging book, Piketty closes his book with an essay on the method to be used in economics. He regards economics as a social science (where the emphasis is on "social") that can flourish only if (i) it asks important, and not trivial, questions (so adieu *Freakonomics* and randomistas), and (ii) uses empirical and historical methods instead of sterile model-building. These issues have been debated *ad nauseum* by the economists, and Piketty has nothing new to add to that, except perhaps in a most important way—namely, by showing in his own work how these two desiderata should be combined to create economic works of durable importance.

9. Closure. *Capital in the 21st century* is a book of huge scope and breadth of vision. It is unabashedly classical in its approach; but its classicism is based on incomparably better and richer data than ever available. It is a very well-written book, erudite but not heavy, of limpid prose where, in 950 pages, I do not think that I encountered more than half a dozen sentences I could not understand or had

to read twice. It is directed mostly to economists but also to the general educated reader who "does not run away as soon as he sees a number". Piketty uses irony with finesse, particularly in his footnotes where he does not spare powerful political figures or famous economists. (It reminded me, at times, of Gibbon's famously clever use of footnotes).

Thomas Piketty has provided a new and extraordinarily rich framework allowing us to think about the recent increase in inequality not as an isolated phenomenon and to forever discuss the merits or demerits of high-skill biased technological progress vs. trade openness, but to see the rising inequality as part of a changing nature of modern capitalism.

I would conclude, as I began, with a personal observation. When reading Piketty's book, it is indeed hard to go back to thinking about anything else: one gets totally absorbed in it. This is perhaps the best compliment that the author of an almost thousand-page long economics book can ever expect to get. Don't take this book on vacation: it will spoil it. Read it a home.

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